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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,387	04/26/2006	Kenji Watari	7412/88137	4696
42798	7590	03/25/2009		
FITCH, EVEN, TABIN & FLANNERY P. O. BOX 18415 WASHINGTON, DC 20036			EXAMINER MELLON, DAVID C	
			ART UNIT	PAPER NUMBER
			1797	
			MAIL DATE	DELIVERY MODE
			03/25/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,387	<b>Applicant(s)</b> WATARI ET AL.	
	<b>Examiner</b> DAVID C. MELLON	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060426</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group I, claims 1-15 in the reply filed on 3/10/2009 is acknowledged. The traversal is on the ground(s) that WIPO did not make a requirement for a lack of unity and examined all claims. This is not found persuasive because making a restriction requirement or lack of unity objection is at the discretion of the examiner. Furthermore, the national stage examiner is not bound by the statements and actions of the international examiner. Furthermore, applicant has not established that there is no search burden as required under MPEP 803 as the mere showing that the international examiner did not make a restriction is not evidence of an unburdensome search. Furthermore, the examiner points applicant to MPEP 1893.03(d) with regards to lack of unity of invention and furthermore to 37 CFR 1.499 which reads as follows:

*37 CFR 1.499. Unity of invention during the national stage*

If the examiner finds that a national stage application lacks unity of invention under § 1.475, the examiner may in an Office action require the applicant in the response to that action to elect the invention to which the claims shall be restricted. Such requirement may be made before any action on the merits but may be made at any time before the final action at the discretion of the examiner. Review of any such requirement is provided under §§ 1.143 and 1.144.

Accordingly, the restriction requirement is maintained.

2. Claims 16-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 3/10/2009.

The requirement is still deemed proper and is therefore made FINAL.

***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the three composite layers of the membrane specifically, the non-porous and porous layers as claimed in claims 1 and 8-15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**7. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamori et al. (USP 5,922,201) and in view of Watari et al. (US 2002/0148775).**

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Regarding claims 1 and 2, Yamamori et al. discloses sheet-form hollow fiber membranes (C3/L43-46, C5/L60-C6/L33) in figure 2, anchoring/fastening members (1/2/9) which fasten the membranes (anchoring member is filled with fastening resin 2), the anchoring members having rectangular or parallelepiped shaped end faces filled with resin where the hollow fiber surfaces are exposed (figure 2, C3/L20-25,53-60) and a circular, side face while leaving the ends of the hollow fibers open (figure 2, C3/L53-60), as well as a planar end face outlet open end (9) that is cylindrically/circularly shaped.

Yamamori et al. does not explicitly disclose a hollow fiber membrane with a non-porous layer.

Watari et al. discloses a gas-permeable hollow fiber membrane (abstract) which has a three-layer structure with a central non-porous layer with porous layers disposed on either side ([0009]).

Yamamori et al. and Watari et al. are combinable because they are concerned with the same field of endeavor, namely that of hollow fiber membrane systems.

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the hollow fiber membrane of Yamamori et al. with a sheet formed membrane of the three layer construction with a non-porous layer as taught by Watari et al. for the purpose of enabling improved gas separation and allowing the membrane unit to be useable for degassing inks ([0007] of Watari).

Regarding claims 3-5, modified Yamamori et al. discloses all of the claim limitations as set forth above.

Yamamori et al. further discloses the long dimension of the rectangular section having no particular limitation (C3/L35-36,45-52) and also shows the cylindrical outlet section to be relatively short in figures 2, 6-9 thus resulting in a relatively proportionate relationship to the diameter of the section.

While Yamamori et al. does not explicitly disclose the relationship between the diameter of the cylindrical section and the length of the cylindrical section, it would have been obvious to one having ordinary skill in the art at the time of the invention to have optimized the length to diameter ratio to achieve the claimed lengths, diameters, and ratios since the disclosed structure of Yamamori sets forth a ratio exists. It would have been obvious to have done to configure the apparatus for end installation and use and to maximize fluid dynamics to achieve the best separation possible. Additionally, applicant has not established any criticality of the claimed lengths, diameters, and ratios. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art (e.g. the readily apparent proportionality in figure 2), discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Additionally, absent some showing of secondary evidence, the relative dimensional ratios of the cylindrical section are not patentably distinct from the prior art teachings of Yamamori et al. because; [W]here the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device, *Gardner v. TEC Systems Inc.*, 220 USPQ 777 (1984).

Regarding claims 6-7, modified Yamamori et al. discloses all of the claim limitations as set forth above.

Yamamori et al. does not explicitly disclose a relationship between the length of a long side of the rectangular parallelepiped section and the cylindrical section diameter.

While Yamamori et al. does not explicitly disclose the relationship between the diameter of the cylindrical section and the length of the long face of the parallelepiped section, it would have been obvious to one having ordinary skill in the art at the time of the invention to have optimized the length to diameter ratio to achieve the claimed lengths, diameters, and ratios since the disclosed structure of Yamamori sets forth a ratio exists. It would have been obvious to have done to configure the apparatus for end installation and use and to maximize fluid dynamics to achieve the best separation possible. Additionally, applicant has not established any criticality of the claimed lengths, diameters, and ratios. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art (e.g. the readily apparent proportionality in figure 2), discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Additionally, absent some showing of secondary evidence, the relative dimensional ratios of the cylindrical section are not patentably distinct from the prior art teachings of Yamamori et al. because; [W]here the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not



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patentably distinct from the prior art device, *Gardner v. TEC Systems Inc.*, 220 USPQ 777 (1984).

Regarding claims 8-12 and 14-15, modified Yamamori et al. discloses all of the claim limitations as set forth above.

Watari et al. further discloses the three layer membrane has porous layers sandwiching a non-porous layer ([0009]) wherein the non-porous layer is gas permeable ([0026]) and the porous layers are made of polyolefins ([0023]). Watari et al. further discloses porous layer thickness of 5-100micrometers and non-porous layer thickness of 0.3-2micrometers ([0009]) with an inner membrane diameter of 50-500 micrometers with a membrane thickness of 10-150 micrometers resulting in a ratio of the two of more than 0.1 ([0010]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the membrane system of Yamamori et al. such that it includes all the features of the three layer composite membrane of Watari et al. for the purpose of decreasing the cost of the system by reducing the mechanical strength needed in the system (Watari et al, [0004]).

Regarding the gas permeability of the non-porous layer, Watari et al. discloses the use of high gas permeability membrane materials ([0026]) but is silent as to the specific gas permeability range of the non-porous layer.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the non-porous layer to have a gas permeability in the claimed range for the purpose of improving ink degassing. Furthermore, applicant has not

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established the criticality of the gas permeability amount and the instant application uses the same materials as the prior art. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art (e.g. the high permeability material), discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 13, modified Yamamori et al. as modified by Watari et al. further discloses an outer diameter of 100 to 3000 micrometers (two porous layers of 100 micrometers combined with a 3 micrometer non porous layer and 50-500 micrometer inner diameter results in a total membrane diameter in the order of 100-3000 micrometers).

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID C. MELLON whose telephone number is (571)270-7074. The examiner can normally be reached on Monday through Thursday 7:00am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tony G Soohoo/  
Primary Examiner, Art Unit 1797

/D. C. M./  
Examiner, Art Unit 1797